

REMARKS/ARGUMENT

In response to the Office Action dated April 3, 2003, claims 1, 6, 8, and 9 are amended, and claim 7 is canceled without prejudice, waiver, or disclaimer to the subject matter contained therein. Claims 5 and 12-20 were currently added. Claims 21-22 were added in the prior amendment filed on February 20, 2003, but were not considered by the Examiner, and are canceled herein without prejudice, waiver, or disclaimer to the subject matter contained therein. Claims 1-4, 6, and 8-11 remain in the application. It is not the Applicants' intent to surrender any equivalents because of the amendments or arguments made herein. Reconsideration of the application and entrance of these amendments, are respectfully requested.

Art-Based Rejections

In paragraph 3 of the Office Action, claims 1-4 and 6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukutani (USPN 5,998,898) in view of Brusic (USPN 5,316,573).

In paragraph 4 of the Office Action, claims 7-11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukutani (USPN 5,998,898) in view of Pavilon (USPN 5,308,521).

In paragraph 5 of the Office Action, claims 1-4 and 6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukutani (USPN 5,998,898) in view of Hobbins (USPN 4,395,294).

The Applicant respectfully traverses the rejections in light of the amendments above and the argument below.

The Fukutani Reference

The Fukutani reference discloses a motor having a hydrodynamic bearing. In FIGS. 1 and 2, a hub 11 is made of martensitic system or ferritic stainless steel, or

free cutting steel. A motor shaft 12, made of stainless steel of martenitic system, is fixed in the center of the hub. The shaft 12 is supported radially by a sleeve 21 made of copper (sic) system alloy. See Col. 6, lines 46-53.

Lubricating fluid such as oil or grease fills up the space between the shaft 12 and sleeve 21 as well s between the shaft 12 and thrust plate 22. See Col 6, lines 60-62.

The Brusic Reference

The ancillary Brusic reference discloses that the protection afforded by a thin layer of a a copper benzotriazole (Cu-BTA) film on a copper containing workpiece is well known, and further discloses the formation of a Cu(I)-BTA film on a non-copper containing, non-passivating, non-noble workpiece by the utiliztition of a treatment bath containing cupric ions and benzotriazole. See Col. 2, lines 3-9.

The Pavilon Reference

The ancillary Pavilon reference discloses a lubricant with improved anti-corrosion properties. The first and major component of Pavilion is an oil of lubricating viscosity, including natural or synthetic lubricating oils and mixtures thereof. See Col. 1, line 67-Col. 2, line 2. A second component of the Pavilon disclosure is a multifunctional olefin copolymer viscosity index modifier. See Col. 2, lines 28-31.

The Hobbins Reference

The ancillary Hobbins reference discloses a copper corrosion inhibitor. The treatment of copper or other metals such as copper containing alloys with 5-methyl benzimidazole (MBA) is also disclosed. See Col. 1, lines 48-50.

In a preferred embodiment, the metal is treated by immersion in a warm solution of the MBA. Although it is not essential that the solution be warmed, enhanced interaction between the MBA and the metal occurs when the temperature employed is in the range 20 to 80 degrees C. See Col. 2, lines 11-16.

The Claims are Patentable over the Cited Reference

The claims of the present invention describe a dynamic pressure bearing device. An apparatus in accordance with the present invention comprises a cylindrical member for rotatably supporting a shaft member, wherein the cylindrical member is composed of a copper metal, a film composed of cupric benzotriazole formed on a surface of the cylindrical member, and a lubricating fluid including benxotriazole and filled in a bearing gap space formed between the cylindrical member and the shaft member, wherein the cupric benzotriazole film is formed by reacting copper in the cylindrical member with the benzotriazole in the lubricating fluid.

The cited references do not teach nor suggest the limitations of the claims of the present invention. Specifically, the cited references do not teach nor suggest the limitation of the cupric benzotriazole film being formed by reacting copper in the cylindrical member with the benzotriazole in the lubricating fluid as recited in the claims of the present invention.

The primary Fukutani reference does not mention benzotriazole.

The ancillary Brusic reference does not remedy the deficiencies of the Fukutani reference. Brusic does disclose use of a cupric benzotriazole film as a lubricant, but this film is not formed by reacting copper in the cylindrical member with benzotriazole in the lubricating fluid; the cupric benzotriazole film is formed prior to coating whatever member the Brusic film is placed on. See Brusic, Col. 2, lines 3-9.

The ancillary Pavilon and Hobbins references are not seen to remedy the deficiencies of the primary Fukutani reference or the deficiencies of the Brusic reference, namely, neither Pavilion nor Hobbins teach nor suggest the limitation of the cupric benzotriazole film being formed by reacting copper in the cylindrical member with the benzotriazole in the lubricating fluid as recited in the claims of the present invention.

The Pavilion reference is not seen to disclose benzotriazole, and, although Applicants do not admit as such, even if Pavilion did disclose benzotriazole, Pavilion does not disclose forming the viscosity index (VI) modifier cupric benzotriazole by reacting copper in the cylindrical member with the benzotriazole in the lubricating fluid as recited in the claims of the present invention. See Pavilion, Col. 1, line 67-Col. 2, line 2, and Col. 2, lines 28-31.

The Hobbins reference, similarly, does not disclose benzotriazole; instead, Hobbins discloses 5-methyl benzimidazole (MBA). See Col. 1, lines 48-50.

Since none of the references, alone or in combination, teach the limitations of the claims of the present invention, namely, none of the references teach nor suggest the limitation of the cupric benzotriazole film being formed by reacting copper in the cylindrical member with the benzotriazole in the lubricating fluid, the Applicants respectfully submit that independent claims 1 and 6 are patentable over the cited references, and respectfully request that the rejections be withdrawn.

The formation of cupric benzotriazole by reacting copper in the cylindrical member with the benzotriazole in the lubricating fluid is desirable because, for example and not by way of limitation, even if the anti-rust film comprising cupric benzotriazole is accidentally eliminated or removed from the dynamic bearing device due to, for example, impact or heat, while the dynamic bearing pressure bearing device is being used, a new anti-rust film comprising cupric benzotriazole is formed on the cylindrical surface by reacting with the benzotriazole in the lubricating fluid. None of the cited references teach nor suggest this benefit as defined by the claims of the present invention.

Dependent claims 2-4 and 8-11 are also patentable over the cited reference, not only because they contain all of the limitations of independent claims 1 and 6 respectively, but because claims 2-4 and 8-11 also describe additional novel elements and features that are not described in the prior art.

Conclusion

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6742 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
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Date: July 2, 2003

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